



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,487	05/10/2004	Cheng-Shih Lee	12875-US-PA	3486
31561	7590	07/06/2007	EXAMINER	
JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE 7 FLOOR-1, NO. 100 ROOSEVELT ROAD, SECTION 2 TAIPEI, 100 TAIWAN			MCDONALD, RODNEY GLENN	
ART UNIT	PAPER NUMBER		1753	
NOTIFICATION DATE	DELIVERY MODE		07/06/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USA@JCIPGROUP.COM.TW

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/709,487	LEE ET AL.
	Examiner Rodney G. McDonald	Art Unit 1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-15 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 6, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jang et al. (Korea 2001- 009208) in view of Demaray et al. (U.S. Pat. 5,330,628).

Regarding claim 1, Jang et al. teach an adjustable main body having an interior space a top portion (110), a bottom portion (100) and an adjuster (130a) between the top portion (110) and the bottom portion (100), the adjuster (130a) being adapted for adjusting a relative distance between the top portion (110) and the bottom portion (100); a first collimating element (170a), fixed inside the interior space of the top portion (110) to move with the top portion (110) and a second collimating element (170b), fixed inside

the interior space of the bottom portion (100) to move with the bottom portion (100).

(See Abstract; Figure)

Regarding claim 6, Jang et al. teach a sputtering apparatus for sputtering a target (160) material onto an object (150). Jang et al. teach a holding base disposed opposite to the target material (110). Jang et al. teach an adjustable collimator (170a, 170b, 170c) disposed between the holding base (140) and the target material (160). The adjustable collimator includes an adjustable main body having an interior space a top portion (110), a bottom portion (100) and an adjuster (130a) between the top portion (110) and the bottom portion (100), the adjuster (130a) being adapted for adjusting a relative distance between the top portion (110) and the bottom portion (100); a first collimating element (170a), fixed inside the interior space of the top portion (110) to move with the top portion (110) and a second collimating element (170b), fixed inside the interior space of the bottom portion (100) to move with the bottom portion (100).

Regarding claim 11, Jang et al. teach a sputtering apparatus for sputtering a target (160) material onto an object (150). Jang et al. teach a holding base (140) disposed opposite to the target material (110). Jang et al. teach an adjustable collimator (170b) disposed between the holding base (140) and the target material (160). The adjustable collimator (170b) disposed on the holding base to cover the object (150) so that the adjustable collimator (170b) moves with the holding base (140). The adjustable collimator includes an adjustable main body having an interior space a top portion (110), a bottom portion (100) and an adjuster (130a) between the top portion (110) and the bottom portion (100), the adjuster (130a) being adapted for adjusting a

Art Unit: 1753

relative distance between the top portion (110) and the bottom portion (100); a first collimating element (170a), fixed inside the interior space of the top portion (110) to move with the top portion (110) and a second collimating element (170b), fixed inside the interior space of the bottom portion (100) to move with the bottom portion (100).

The differences between Jang et al. and the present claims is that the shields being considered collimating elements is not discussed (Claims 1, 6, 11) and the chamber is not discussed (Claims 6 and 11).

Regarding claims 1, 6, 11, assuming that the shields are not considered to be a collimating element, Demaray et al. teach incorporating moving collimator the same as the moving shield in Jang et al. Specifically Demaray et al. teach in Fig. 14 a filter 63 (i.e. collimator) formed in two sections 63a and 63b which are movable axially relative to each other, and the aspect ratio is changed by changing the spacing between the sections, which effectively changes the height of the cells. (Column 8 lines 62-68)

The motivation for utilizing moving collimators is that it allows filling a hole which has a continually changing aspect ratio. (Column 8 lines 54-61)

Regarding claims 6, 11, Demaray et al. teach utilizing a housing (i.e. chamber) for the elements of sputtering. (Column 2 lines 41-44)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Jang et al. by utilizing the features of Demaray et al. because it allows for filling a hole.

Claims 2, 7, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jang et al. in view of Demaray et al. as applied to claims 1, 6, 11 above, and further in view of Grantham et al. (US PGPUB 2004/0086639 A1).

The difference not yet discussed is the mask. (Claims 2, 7, 12)

Regarding claims 2, 7, 12, Grantham et al. teach utilizing mask elements between collimators. (Page 4 paragraph 0068)

The motivation for utilizing a mask is that it blocks the vapor stream. (Page 4 paragraph 0068)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized a mask as taught by Grantham et al. because it allows for blocking the vapor stream.

Claims 3, 8, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jang et al. in view of Demaray et al. as applied to claims 1, 6, 11 above, and further in view of Harker et al. (U.S. Pat. 3,690,635).

The difference not yet discussed is the use of a rough adjustment element and a fine adjustment element. (Claims 3, 8, 13)

Regarding claims 3, 8, 13, Jang et al. already teach rough adjustment means in the form of bellows. (See Jang et al. discussed above) Harker et al. teach a series of collimators. (Column 3 lines 58-68; Column 4 lines 1-16) The collimators include fine adjustment means in the form of projections and stops in order to adjust the distance. (Column 4 lines 1-19)

The motivation for utilizing fine adjustment means is that it allows adjustment of the distances for the individual collimators. (Column 4 lines 1-14)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the features of Harker et al. because it allows for adjustment of the distances for the individual collimators.

Claims 4, 5, 9, 10, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jang et al. in view of Demaray et al. as applied to claims 1, 6, 11 above, and further in view of Krivokapic et al. (U.S. Pat. 5,643,428).

The differences not yet discussed is wherein the shape of the holes of the first collimating element is the same as that of the second collimating element (Claims 4, 9, 14) and where the shape of the holes of the first collimating element is different from that of the second collimating element (Claims 5, 10, 15).

Regarding claims 4, 9, 14, Krivokapic et al. teach a tiered collimator comprising at least two tiers of collimators. In one embodiment the collimators in the two tiers are of identical configuration having hexagonal shapes for the holes. (Column 5 lines 62-68; Column 6 lines 1-10, lines 23-25)

Regarding claims 5, 10, 15, Krivokapic et al. teach that the collimators in the tiers may have a dissimilar size and/or configuration. (Column 6 lines 4-8) The tiers may be comprised of various geometric shapes. (Column 8 lines 1-10) Here the different configurations are interpreted by the Examiner to include different shapes.

The motivation for utilizing the features of Krivokapic et al. is that it allows for improved step coverage. (See Abstract)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the features of Krivokapic et al. because it allows for improving step coverage.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hiramatsu et al. (Japan 07-150347) showing moving collimators relative to one another.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney G. McDonald whose telephone number is 571-272-1340. The examiner can normally be reached on M-TH with every Friday off..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Rodney G. McDonald  
Primary Examiner  
Art Unit 1753

RM  
June 26, 2007